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SCIENTIFIC DATA REVIEWS
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OFFICE OF
PREVENTION, PESTICIDES, AND
TOXIC SUBSTANCES

MEMORANDUM

DATE: June 7, 1999

SUBJECT: Fipronil - Acute and Chronic Dietary Exposure Analyses. Chemical#: 129121. DP Barcode: D255832. Case #: 291825. Submission #: S560375.

TO/FROM: Susie Chun, Chemist
Registration Action Branch 1
Health Effects Division

THROUGH: Mike Doherty, Chemist
Dave Soderberg, Chemist
Dietary Exposure Science Advisory Council

Melba Morrow, D.V.M., Branch Senior Scientist
Registration Action Branch 1
Health Effects Division

Action Requested

Provide an estimate of the dietary exposure and associated risks for fipronil resulting from an emergency exemption (Section 18) request in/on cottonseed RACs (98MS0011). The proposed use will also affect existing tolerances for residues in meat, poultry, and milk.

The following are the proposed tolerances:

Cottonseed	0.5 ppm
Cotton Gin Trash	10.0 ppm
Meat Byproducts* (except liver)	0.3 ppm
Meat*	0.5 ppm
Fat*	3.6 ppm
Liver*	1.1 ppm

Hog Fat	0.07 ppm
Eggs	0.06 ppm
Poultry Fat	0.11 ppm
Poultry Meat Byproducts	0.04 ppm
Milkfat (reflecting 0.4 ppm in whole milk)	12.0 ppm

* of cattle, sheep, goats, and horses

Executive Summary

The FQPA Safety Factor was removed (i.e., reduced to 1x) for acute and chronic dietary exposures. Therefore the acute and chronic population adjusted doses (aPAD and cPAD, respectively) are the same values as the acute and chronic reference doses (aRfD and cRfD), respectively. The PAD is a modification of the acute RfD or chronic RfD to include the FQPA Safety Factor.

For the acute dietary analysis, an aPAD of 0.02 mg/kg/day (incorporating 10x for interspecies extrapolation, 10x for intraspecies extrapolation, and 1x FQPA Safety Factor) was used. The Tier 2 acute dietary analysis for fipronil is a partially refined estimate of dietary exposure with the use of anticipated residues (ARs) for blended commodities and 100 percent crop treated (%CT). The percent aPADs were below HED's level of concern (<100 % aPAD) at the 95th percentile for the U.S. population and all subgroups. The results of this analysis indicate that the acute dietary risk associated with the S18 use of fipronil on cottonseed is below HED's level of concern.

For the chronic dietary analysis, a cPAD of 0.0002 mg/kg/day (incorporating 10x for interspecies extrapolation, 10x for intraspecies extrapolation, and 1x FQPA Safety Factor) was used for fipronil (+MB45950 and MB46136) and a cPAD of 0.00002 mg/kg/day (incorporating 10x for interspecies extrapolation, 10x for intraspecies extrapolation, and 1x FQPA Safety Factor) was used for the fipronil photodegradate, MB46513. The Tier 3 chronic dietary analyses for fipronil and MB46513 are more refined estimates with the use of anticipated residues (ARs) and %CT or %Anticipated market share information. Percent CT information was used for cottonseed RACs. Anticipated market share information was used for rice and corn RACs. However, the chronic dietary analyses are still an over-estimation of dietary exposure. Further refinements would entail the use of monitoring data (if available) for all commodities. The percent cPADs were below HED's level of concern for the U.S. population and all subgroups. The results of this analysis indicate that the chronic dietary risk associated with the S18 use of fipronil on cottonseed RACs is below HED's level of concern.

Note: Since the revised ARs (incorporating cottonseed RACs) will be applicable in support of this S18 action only, this dietary analysis is applicable only to this Section 18. Should any other states request approval for use of fipronil on cottonseed RACs under FIFRA Section 18, the percent crop treated will have to be updated and the ARs adjusted accordingly. Consequently, a new dietary exposure analysis will have to be completed.

Toxicological Endpoints

The Hazard Identification Assessment Review Committee (HIARC) met on July 10, 1997 to select appropriate endpoints for acute dietary and short-, intermediate-, and long-term occupational exposure (dermal and inhalation) for fipronil and on December 9, 1997 to select appropriate endpoints for acute dietary and short-, intermediate-, and long-term occupational exposure (dermal and inhalation) for the fipronil photodegradate MB46513. On January 22, 1998, the HIARC reassessed the potential sensitivity of infants and children and to discuss the uncertainty factors (UF) and/or Margins of Exposure (MOE) for both the parent, fipronil and the photodegradate MB46513. On April 22, 1998, the HIARC met again to re-evaluate the

endpoints for fipronil and its photodegradate based on new and re-evaluated data (Memo, J. Rowland and M. Copley, HED Doc. No. 012607, 5/7/98). The conclusions, which superseded all conclusions in previous HIARC documents, are summarized in Tables 1 and 2.

Table 1- Toxicological Doses and Endpoints for Fipronil (Parent)

EXPOSURE SCENARIO	Dose (mg/kg/day)	ENDPOINT AND TOXICOLOGICAL EFFECT	STUDY
Acute (Dietary)	NOAEL = 2.5 mg/kg/day UF = 100 FQPA SF = 1	Decreased hind leg splay in male and female rats in an acute neurotoxicity study in rats.	Acute neurotoxicity
	Acute RfD = 0.025 mg/kg/day Acute PAD =0.025 mg/kg/day		
Chronic (Dietary)	NOAEL = 0.019 mg/kg/day UF = 100 FQPA SF=1	Increased incidence of seizures and death, alterations in clinical chemistry (protein) and ↑ TSH, ↓ T4.	Chronic/onco rat study
	Chronic RfD = 0.0002 mg/kg/day Chronic PAD = 0.0002 mg/kg/day		
Cancer (Dietary)	NA	Group C - Possible Human Carcinogen (increases in thyroid follicular cell tumors with fipronil (M&F)). Use RfD to estimate human risk.	

Table 2. Toxicological Doses and Endpoints for photodegradate (MB46513)

EXPOSURE SCENARIO	Dose (mg/kg/day)	ENDPOINT AND TOXICOLOGICAL EFFECT	STUDY
Acute (Dietary)	NOAEL = 2.0 mg/kg/day UF = 100 FQPA SF = 1	Decreased locomotor activity as well as decreases in hindlimb splay and rectal temperature	Acute neurotoxicity
	Acute RfD = 0.02 mg/kg/day Acute PAD = 0.02 mg/kg/day		
Chronic (Dietary)	*Adjusted NOAEL = 0.0019 mg/kg/day UF = 100 FQPA SF = 1	Increased incidence of seizures and death, alterations in clinical chemistry (protein) and ↑ TSH, ↓ T4.	Chronic/onco rat study (fipronil)
	Chronic RfD = 0.00002 mg/kg/day Chronic PAD= 0.00002 mg/kg/day		
Cancer (Dietary)	NA	Group C - Possible Human Carcinogen (increases in thyroid follicular cell tumors with fipronil (M&F)). Use RfD to estimate human risk.	

* = Adjusted NOAEL obtained by dividing the actual NOAELs established in the studies conducted with the parent compound fipronil and potency adjustment factor (PAF) of 10. A PAF of 10 was determined by the HIARC based on the toxicity profiles of the **photodegradate MB41513** and **fipronil.**

Cancer

Fipronil has been classified by the HED Cancer Peer Review Committee (document dated July 18, 1997) as a Group C - Possible Human Carcinogen, based on increases in thyroid follicular cell tumors in both sexes of the rat, which were statistically significant by both pair-wise and trend analyses. There are no cancer studies with the photodegradate MB46513. The RfD methodology should be used to estimate human risk because the thyroid tumors appear to be related to a disruption in the thyroid-pituitary status. There was no apparent concern for mutagenicity (no mutagenic activity).

FQPA Recommendation

The HIARC recommended that the **10 x** factor to account for enhanced sensitivity of infants and children (as required by FQPA) should be removed. **The HIARC concluded that the apparent increased susceptibility in the developmental neurotoxicity study was not supported by the overall weight-of-the-evidence (including no evidence for increased susceptibility in the developmental and reproduction studies) from the fipronil data base** (Memo, J. Rowland and M. Copley, HED Doc. No. 012607, 5/7/98).

The FQPA Safety Factor Committee (SFC) met on 27-APR-1998. The FQPA SFC recommended that the **10x factor** for enhanced sensitivity to infants and children (as required by FQPA) should be **removed** for fipronil and its photodegradate, MB46513 (Memo, B. Tarplee and J. Rowland, HED. Doc. No. 012619, 5/12/98).

Since the FQPA SF is removed (i.e. reduced to 1x), the aPAD and the cPAD are the same as the acute and chronic RfDs, respectively. The PAD is a modification of the aRfD or cRfD to include the FQPA Safety Factor or:

$$PAD = \frac{RfD}{FQPA\ SF}$$

Residue Information

The HED Metabolism Committee, in a meeting held on May 28, 1997, determined that the fipronil residues of concern for the tolerance expression and dietary risk assessment in plants and animals are the parent and its metabolites MB 46136 and MB45950. The Metabolism Committee also concluded that residue data for metabolite MB46513 will be required for crops for which metabolism data indicate that this metabolite comprises a significant portion of the total radioactive residue (i.e., rice, potatoes, and rotational crops) (Memo, D236164, R. Loranger, 6/5/97).

Metabolite MB46513 was identified as a significant component in/on rice commodities. HED concurred with the petitioner that the residues of concern in rice are fipronil and its metabolites MB45950, MB46136, and MB46513. MB46513 was therefore added to the tolerance expression. Cottonseed RAC residue data also was submitted with data including MB46513. Corn residue data indicate that this metabolite does not comprise a significant portion of the total radioactive residue.

Currently the tolerance expression in the 40 CFR includes fipronil and the 3 metabolites, MB45950, MB46136, and MB46513.

Anticipated Residue Information

Anticipated residues (ARs) were calculated and incorporated a dietary exposure analysis, which was completed with the Dietary Risk Evaluation System (DRES), in support of a tolerance on rice (PP#7F4832, Memo, D239007, G. Kramer, et. al, 1/16/98; Memo, D241676, G. Kramer, et. al., 5/22/98.)

With the proposed use on cottonseed RACs, those ARs need to be revised. The current S18 action results in increased fipronil (+metabolites) residues in animal feed items. Therefore, it is necessary to recalculate the ARs for animal commodities. **Should any other states request approval for use of fipronil on cottonseed RACs under FIFRA Section 18, the maximum percent crop treated will have to be updated and the ARs adjusted accordingly.**

The revised ARs (incorporating cottonseed RACs) will be applicable in support of this S18 action only.

Anticipated residue (AR) information based on field trial data (Memo, D255833, S. Chun, 5/19/99), % CT information (estimated for this S18 only), and % Anticipated Market Share information were used.

Tables 1, 2, and 3 present the ARs used in the dietary exposure analyses.

Note: The Hazard Identification Assessment Review Committee (HIARC) chose a dose and endpoint each for fipronil (including the metabolites MB45950 and MB46136) and for MB46513. The acute reference dose (aRfD) selected for MB46513 was less than the aRfD for fipronil. MB46513 is considered more acutely toxic than the parent. Since the FQPA SFC determined to remove the SF (i.e. reduced to 1x) the aRfD is the same as the aPAD for the MB46513 photodegradate. A tier 2 acute dietary analysis will be done with MB46513's aPAD, incorporating fipronil (+2 metabolites). If further refinements in the acute dietary risk assessment are required in the future, separate acute dietary exposure analyses may have to be performed for MB 46513 and fipronil (+2 metabolites) separately.

Table 1. Summary of Fipronil + MB 46136 + MB 45950 + MB46513 Residues for Tier 2 Acute Dietary Risk Assessment

Commodity	AR to Use in Acute Dietary Exposure Analysis (ppm)
Corn Grain[1, 6] **Includes processed commodities**	0.015
Rice Grain[2, 6] **Includes processed commodities** **Excludes wild rice**	0.021
Cottonseed [3, 6] **Includes processed commodities**	0.011
Meat[4]	0.089
Liver[4]	0.23
Meat by-products (except liver)[3]	0.058
Fat[4]	0.78
Milk Fat[5]	1.0
Hog Meat	0.0024
Hog Liver	0.0063
Hog Meat by-products (except liver)	0.0016
Hog Fat	0.021
Poultry meat	0.0030
Poultry meat by-products	0.010
Poultry fat	0.028
Eggs	0.016

1 Since residues do not concentrate in processed commodities of corn, the anticipated residue of 0.015 ppm should be used for such commodities in the dietary exposure analysis (i.e. corn oil, meal, etc.).

2 Since residues do not concentrate in processed commodities of rice, the anticipated residue of 0.021 ppm should be used for such commodities in the dietary exposure analysis (i.e. flour, etc.).

3 Since residues do not concentrate in processed commodities, the AR of 0.011 should be used for such commodities in the dietary exposure analysis (i.e., cotton meal, cottonseed oil).

4 These anticipated residues should also be used for meat, fat and meat by-products of horses, goats and sheep in the dietary exposure analysis.

5 All residues in milk are assumed to concentrate in fat, a value of 0 ppm should be used for other milk fractions

6 Blended commodities will use the average field trial value.

Chronic

Table 2. Summary of Fipronil + MB 46136 + MB 45950 ARs for Tier 3 Chronic Dietary Risk Assessment

Commodity	% CT or %Anticipated Market Share	AR to use in Chronic Dietary Exposure Analysis[6] (ppm)
Corn Grain[1] **Includes processed commodities**	7	0.015
Rice Grain[2] **Includes processed commodities Excludes wild rice**	11	0.015
Cottonseed[3]	3.6	0.0060
Meat[4]	-----	0.00074
Liver[4]	-----	0.0020
Meat by-products (except liver)[4]	-----	0.00048
Fat[4]	-----	0.0066
Milk Fat[5]	-----	0.017
Hog Meat	-----	0.00017
Hog Liver	-----	0.00044
Hog Meat by-products (except liver)	-----	0.00011
Hog Fat	-----	0.0015
Poultry meat	-----	0.00021
Poultry meat by-products	-----	0.00071
Poultry fat	-----	0.0019
Eggs	-----	0.0011

1 Since residues do not concentrate in processed commodities of corn, the anticipated residue of 0.001 ppm should be used for such commodities in the DEEM™ analysis (i.e. corn oil, meal, etc.) except corn sugar for which processing data are not available.

2 Since residues do not concentrate in processed commodities of rice, the anticipated residue of 0.015 ppm should be used for such commodities in the DEEM™ analysis (i.e. flour, etc.).

3 Since residues do not concentrate in processed commodities of cottonseed, the anticipated residue of 0.0016 ppm should be used for such commodities in the DEEM™ analysis (i.e. cotton meal, cottonseed oil, etc.).

4 These anticipated residues should also be used for meat, fat and meat by-products of horses, goats and sheep in the DEEM™ analysis.

5 All residues in milk are assumed to concentrate in fat, a value of 0 ppm should be used for other milk fractions

6 The ARs in the RACs **do not** incorporate %CT or % Anticipated Market Share.

Table 3. Summary of MB46513 ARs for Tier 3 Chronic Dietary Risk Assessment

Commodity	% CT or %Anticipated Market Share	AR to use in Chronic Dietary Exposure Analysis[6] (ppm)
Corn Grain[1] **Includes processed commodities**	7	0
Rice Grain[2] **Includes processed commodities Excludes wild rice**	11	0.0050
Cottonseed[3]	3.6	0.0047
Meat[4]	-----	0.000069
Liver[4]	-----	0.00018
Meat by-products (except liver)[4]	-----	0.000045
Fat[4]	-----	0.00061
Milk Fat[5]	-----	0.0019
Hog Meat	-----	0.000035
Hog Liver	-----	0.000092
Hog Meat by-products (except liver)	-----	0.000023
Hog Fat	-----	0.00031
Poultry meat	-----	0.000010
Poultry meat by-products	-----	0.000036
Poultry fat	-----	0.000098
Eggs	-----	0.000055

1 MB46513 is not a metabolite found in corn. Therefore, an AR of 0 ppm can be used for corn RACs.

2 Since residues do not concentrate in processed commodities of rice, the anticipated residue of 0.005 ppm should be used for such commodities in the DEEM™ analysis (i.e. flour, etc.).

3 Since residues do not concentrate in processed commodities of cottonseed, the anticipated residue of 0.0016 ppm should be used for such commodities in the DEEM™ analysis (i.e. cotton meal, cottonseed oil, etc.).

4 These anticipated residues should also be used for meat, fat and meat by-products of horses, goats and sheep in the DEEM™ analysis.

5 All residues in milk are assumed to concentrate in fat, a value of 0 ppm should be used for other milk fractions

6 The ARs in the RACs **do not** incorporate %CT or % Anticipated Market Share.

For cottonseed, percent crop treated was estimated from Agricultural Statistics, 1995-1996. According to this source, a total of 137,201,000 acres of cottonseed was planted in 1994 in the continental United States. This S18 request is for a total of 500,000 acres in Mississippi. Therefore, ***for this S18 action only***, the maximum percent crop treated is 3.6% [(acreage to be treated ÷ acres planted in 1994) x 100].

For the acute dietary analysis, tolerance level residues, ARs for blended commodities, 100% CT, and an aPAD of 0.02 mg/kg/day (MB46513's) were used.

For the chronic dietary analysis, ARs based on field trial data (Memo, D255833, S. Chun, D243318, in preparation), % CT information for cottonseed RACS, and % Anticipated Market Share Information for rice and corn RACS were used. A cPAD of 0.0002 mg/kg/day was used

for fipronil (+ MB45950 and MB46136) and a cPAD of 0.00002 mg/kg/day was used for MB46513. The registrant submitted a projected market share percent of 11% for rice and 7% for corn. The Biological and Economics Analysis Division (BEAD) has re-verified these values [personal communication to S. Chun from A. Halvorson, 5/19/99]. Therefore, these values were used in the chronic dietary analysis

Since there is no concentration in processed commodities for rice, corn, or cottonseed, the ARs in the RAC will be used in their respective processed commodities.

Results

The Dietary Exposure Evaluation Model (DEEM™) analysis evaluated the individual food consumption as reported by respondents in the USDA 1989-92 Continuing Surveys for Food Intake by Individuals (CSFII) and accumulated exposure to the chemical for each commodity. Summaries of the residue information used in the acute, chronic (fipronil, MB45950, MB46136) and chronic (MB46513) dietary exposure analyses are attached (Attachments 1, 3, and 5).

Acute Dietary Exposure Analysis

The acute dietary exposure analysis estimates the distribution of single-day exposures for the U.S. population and certain subgroups and accumulates exposure to the chemical for each commodity. Each analysis assumes uniform distribution of fipronil (+ MB45950, MB46136, and MB46513) for the commodities on which fipronil (+ MB45950, MB46136, and MB46513) is used.

The FQPA SFC removed the 10x factor (i.e., reduced to 1x) resulting in an aPAD of 0.02 mg/kg/day. HED's level of concern is for acute dietary exposures greater than 100% aPAD. The acute dietary exposure analysis was performed for the U.S. population and 26 subgroups. A summary with all population subgroups is attached (Attachment 2).

Dietary exposures and associated acute dietary risk are shown in Table 1. Besides the U.S. population, the subgroups included in Table 1 represent all children's subgroups and the highest dietary exposures for their respective subgroups (i.e., females and males).

Table 1. - Acute Dietary Exposure Results

Subgroups	95th Percentile		99th Percentile		99.9th Percentile	
	Exposure (mg/kg/day)	% aPAD	Exposure (mg/kg/day)	% aPAD	Exposure (mg/kg/day)	% aPAD
U.S. Population	0.001717	9	0.002911	15	0.004482	22
All infants (<1 year)	0.002869	14	0.004338	22	0.006288	31
Nursing infants (< 1 year)	0.001063	5	0.003089	15	0.003467	17
Non-nursing infants (< 1 year)	0.003223	16	0.004491	22	0.006049	30
Children (1-6 years old)	0.003244	16	0.004382	22	0.005793	29
Children (7-12 years old)	0.002114	11	0.003056	15	0.004438	22
Females (13-19 yrs/np/nn)	0.001309	7	0.002181	11	0.003225	16
Males (13-19 years old)	0.001461	7	0.001985	10	0.002982	15

Chronic Dietary Analysis

The chronic DEEM™ dietary exposure analysis used mean consumption (3 day average). The FQPA SFC removed the 10x factor (i.e., reduced to 1x) resulting in a cPAD of 0.0002 mg/kg/day for fipronil (+MB45950 and MB46136) and 0.00002 mg/kg/day for MB46513. HED's level of concern is for chronic dietary exposures greater than 100% cPAD. Dietary exposures for the U.S. general population and other subgroups are presented in Tables 2 and 3. The other subgroups included represent the highest dietary exposures for their respective subgroups (i.e., infants, children, females, and males).

Table 2. - Chronic Dietary Exposure Results (Fipronil, MB45950, and MB46136)

Subgroups	Exposure (mg/kg/day)	% cPAD
U.S. Population (48 states)	0.000010	5
Non-nursing Infants	0.000014	7
Children (1 - 6 years old)	0.000027	13
Females (13-19, np/nn)	0.000009	4
Males (13-19 years old)	0.000011	6

Table 3. - Chronic Dietary Exposure Results (MB46513)

Subgroups	Exposure (mg/kg/day)	% cPAD
U.S. Population (48 states)	0.000001	5
Non-nursing Infants	0.000002	8
Children (1 - 6 years old)	0.000003	13
Females (13-19, np/nn)	0.000001	4
Females (13+, nursing)	0.000001	4
Males (13-19 years old)	0.000001	5

Complete chronic dietary exposure analyses are attached (Attachments 4 and 6).

Conclusions

The Tier 2 acute dietary analysis for fipronil is a somewhat conservative estimate of dietary exposure with the use of ARs for blended commodities and 100 percent of the commodities assumed to be treated. Also, the combining of fipronil with all 3 metabolites using the lower aPAD reflects a conservative estimate. The percent aPADs were below HED's level of concern at the 95th percentile for the U.S. population and all subgroups with the highest exposure of 16% aPAD in the subgroup children (1-6 years old). The results of this analysis indicate that the acute dietary risk associated with the proposed use of fipronil on cottonseed RACs is below HED's level of concern.

The Tier 3 chronic dietary analyses for fipronil (+ 2 metabolites) and MB46513 are more refined estimates with the use of ARs and %CT information. Further refinements would entail the use of monitoring data for all commodities. The percent cPADs (fipronil + 2 metabolites) were below HED's level of concern for the U.S. population and all subgroups with the highest exposure of 13% cPAD in the subgroup children (1-6 years old). The percent cPADs (MB46513) were below HED's level of concern for the U.S. population and all subgroups with the highest exposure of 13% cPAD in the subgroup children (1-6 years old). The results of these analyses indicate that the chronic dietary risk associated with the proposed use of fipronil on cottonseed RACs is below HED's level of concern.

Attachment 1: Residue File -Acute
Attachment 2: Acute DEEM™ analysis - (S. Chun, 5/20/99)
Attachment 3: Residue File - Chronic (Fipronil, MB45950, and MB46136)
Attachment 4: Chronic DEEM™ analysis (Fipronil, MB45950, and MB46136) [S. Chun, 5/20/99]
Attachment 5: Residue File - Chronic (MB46513)
Attachment 6: Chronic DEEM™ analysis (MB46513) [S. Chun, 5/20/99]

cc(with attachments): S. Chun (RAB1); M. Sahafeyan (CEB1), PP# 99MS0011
RDI: Dietary Exposure SAC [D. Soderberg (5/28/99), M. Doherty (6/2/99)]; M. Morrow (6/7/99)
S. Chun:806R:CM#2:(703)305-2249:7509C:RAB1

Attachment 1: Residue Information - Acute

Filename: C:\deem\resdata\129121a.r96
Chemical name: Fipronil
RfD(Chronic): .0002 mg/kg bw/day NOEL(Chronic): .019 mg/kg bw/day
RfD(Acute): .02 mg/kg bw/day NOEL(Acute): 2 mg/kg bw/day
Date created/last modified: 06-02-1999/06:19:09/8 Program ver. 6.77
Comment: FQPA SF=1, UF=100, therefore RfD=PAD; Fipronil (+3 metabolites)

Food Code	Crop Grp	Food Name	RESIDUE (ppm)	RDF #	Adj.Factors #1	#2	Comment
291	O	Cottonseed-meal	0.011000	0	1.000	0.036	New, S18, AR
290	O	Cottonseed-oil	0.011000	0	1.000	0.036	New, S18, AR
323	M	Beef-dried	0.089000	0	1.920	1.000	New, TLT + 0.46, AR
324	M	Beef-fat w/o bones	0.780000	0	1.000	1.000	New, TLT + 3.2 ppm, AR
325	M	Beef-kidney	0.058000	0	1.000	1.000	New, TLT + 0.26, AR
327	M	Beef-lean (fat/free) w/o bones	0.089000	0	1.000	1.000	New, TLT + 0.46, AR
326	M	Beef-liver	0.230000	0	1.000	1.000	New, TLT + 1.0, AR
321	M	Beef-meat byproducts	0.058000	0	1.000	1.000	New, TLT + 0.26, AR
322	M	Beef-other organ meats	0.058000	0	1.000	1.000	New, TLT + 0.26, AR
330	M	Goat-fat w/o bone	0.780000	0	1.000	1.000	New, TLT + 3.2 ppm, AR
331	M	Goat-kidney	0.058000	0	1.000	1.000	New, TLT + 0.26, AR
333	M	Goat-lean (fat/free) w/o bone	0.089000	0	1.000	1.000	New, TLT + 0.46, AR
332	M	Goat-liver	0.230000	0	1.000	1.000	New, TLT + 1.0, AR
328	M	Goat-meat byproducts	0.058000	0	1.000	1.000	New, TLT + 0.26, AR
329	M	Goat-other organ meats	0.058000	0	1.000	1.000	New, TLT + 0.26, AR
334	M	Horsemeat	0.089000	0	1.000	1.000	New, TLT + 0.46, AR
344	M	Pork-fat w/o bone	0.021000	0	1.000	1.000	New, TLT +0.03 ppm
345	M	Pork-kidney	0.001600	0	1.000	1.000	AR
347	M	Pork-lean (fat free) w/o bone	0.002400	0	1.000	1.000	AR
346	M	Pork-liver	0.006300	0	1.000	1.000	AR
342	M	Pork-meat byproducts	0.001600	0	1.000	1.000	AR
343	M	Pork-other organ meats	0.001600	0	1.000	1.000	AR
338	M	Sheep-fat w/o bone	0.780000	0	1.000	1.000	New, TLT + 3.2 ppm, AR
339	M	Sheep-kidney	0.058000	0	1.000	1.000	New, TLT + 0.26, AR
341	M	Sheep-lean (fat free) w/o bone	0.089000	0	1.000	1.000	New, TLT + 0.46, AR
340	M	Sheep-liver	0.230000	0	1.000	1.000	New, TLT + 1.0, AR
336	M	Sheep-meat byproducts	0.058000	0	1.000	1.000	New, TLT + 0.26, AR
337	M	Sheep-other organ meats	0.058000	0	1.000	1.000	New, TLT + 0.26, AR
429	M	Veal-dried	0.089000	0	1.920	1.000	New, TLT + 0.46, AR
424	M	Veal-fat w/o bones	0.780000	0	1.000	1.000	New, TLT + 3.2 ppm, AR
426	M	Veal-kidney	0.058000	0	1.000	1.000	New, TLT + 0.26, AR

425	M	Veal-lean (fat free) w/o bones	0.089000	0	1.000	1.000 New, TLT + 0.46, AR
427	M	Veal-liver	0.230000	0	1.000	1.000 New, TLT + 1.0, AR
430	M	Veal-meat byproducts	0.058000	0	1.000	1.000 New, TLT + 0.26, AR
428	M	Veal-other organ meats	0.058000	0	1.000	1.000 New, TLT + 0.26, AR
366	P	Chicken-byproducts	0.010000	0	1.000	1.000 New, TLT + 0.02, AR
368	P	Chicken-fat w/o bones	0.028000	0	1.000	1.000 New, TLT + 0.06, AR
367	P	Chicken-giblets(liver)	0.010000	0	1.000	1.000 New, TLT + 0.02, AR
385	P	Chicken-giblets (excl. liver)	0.010000	0	1.000	1.000 New, TLT + 0.02, AR
369	P	Chicken-lean/fat free w/o bones	0.003000	0	1.000	1.000 AR
364	P	Eggs-white only	0.016000	0	1.000	1.000 New, TLT + 0.03, AR
363	P	Eggs-whole	0.016000	0	1.000	1.000 New, TLT + 0.03, AR
365	P	Eggs-yolk only	0.016000	0	1.000	1.000 New, TLT + 0.03, AR
362	P	Poultry-other-fat w/o bones	0.028000	0	1.000	1.000 New, TLT + 0.06, AR
361	P	Poultry-other-giblets(liver)	0.010000	0	1.000	1.000 New, TLT + 0.02, AR
360	P	Poultry-other-lean (fat free) w/	0.003000	0	1.000	1.000 AR
355	P	Turkey-byproducts	0.010000	0	1.000	1.000 New, TLT + 0.06, AR
357	P	Turkey--fat w/o bones	0.028000	0	1.000	1.000 AR
356	P	Turkey-giblets (liver)	0.010000	0	1.000	1.000 New, TLT + 0.02, AR
358	P	Turkey- lean/fat free w/o bones	0.003000	0	1.000	1.000 AR
449	P	Turkey-other organ meats	0.010000	0	1.000	1.000 New, TLT + 0.02, AR
319	D	Milk-fat solids	1.000000	0	1.000	1.000 New, TLT + 10.5, AR
267	15	Corn grain-bran	0.015000	0	1.000	0.070 AR
266	15	Corn grain-endosperm	0.015000	0	1.000	0.070 AR
289	15	Corn grain-oil	0.015000	0	1.000	0.070 AR
268	15	Corn grain/sugar/hfcs	0.015000	0	1.500	0.070 AR
388	15	Corn grain/sugar-molasses	0.015000	0	1.500	0.070 AR
408	15	Rice-bran	0.021000	0	1.000	0.110 AR
271	15	Rice-milled (white)	0.021000	0	1.000	0.110 AR
270	15	Rice-rough (brown)	0.021000	0	1.000	0.110 AR

Attachment 2: Acute Dietary Exposure Analysis

U.S. Environmental Protection Agency Ver. 6.78
DEEM ACUTE analysis for FIPRONIL (1989-92 data)
Residue file: 129121a.r96 Adjustment factor #2 NOT used.
Analysis Date: 06-02-1999/06:48:44 Residue file dated: 06-02-1999/06:34:06/8
Acute Reference Dose (aRfD) = 0.020000 mg/kg body-wt/day
NOEL (Acute) = 2.000000 mg/kg body-wt/day
Run Comment: FQPA SF=1, UF=100, therefore RfD=PAD; Fipronil (+3 metabolites)

Summary calculations:

	95th Percentile			99th Percentile			99.9th Percentile	
	Exposure	% aRfD	MOE	Exposure	% aRfD	MOE	Exposure	% aRfD	MOE
U.S. pop - all seasons:	0.001717	8.59	1164	0.002911	14.56	687	0.004482	22.41	446
U.S. pop - spring season:	0.001742	8.71	1147	0.003193	15.97	626	0.004608	23.04	433
U.S. pop - summer season:	0.001803	9.02	1109	0.002869	14.34	697	0.004453	22.26	449
U.S. pop - autumn season:	0.001791	8.95	1116	0.002958	14.79	676	0.004533	22.67	441
U.S. pop - winter season:	0.001583	7.92	1263	0.002686	13.43	744	0.003809	19.05	525
Northeast region:	0.001771	8.85	1129	0.003178	15.89	629	0.005012	25.06	399
Midwest region:	0.001851	9.25	1080	0.003048	15.24	656	0.004281	21.41	467
Southern region:	0.001628	8.14	1228	0.002771	13.85	721	0.004364	21.82	458
Western region:	0.001676	8.38	1193	0.002774	13.87	721	0.004222	21.11	473
Hispanics:	0.002051	10.26	975	0.003182	15.91	628	0.004836	24.18	413
Non-hispanic whites:	0.001684	8.42	1187	0.002836	14.18	705	0.004351	21.76	459
Non-hispanic blacks:	0.001761	8.81	1135	0.003101	15.51	644	0.004431	22.15	451
Non-hispanic other:	0.001758	8.79	1137	0.003319	16.59	602	0.004296	21.48	465
All infants (<1 year):	0.002869	14.35	697	0.004338	21.69	461	0.006288	31.44	318
Nursing infants (<1 year):	0.001063	5.31	1881	0.003089	15.44	647	0.003467	17.34	576
Non-nursing infants (<1 yr):	0.003223	16.12	620	0.004491	22.45	445	0.006049	30.25	330
Children (1-6 years):	0.003244	16.22	616	0.004382	21.91	456	0.005793	28.96	345
Children (7-12 years):	0.002114	10.57	946	0.003056	15.28	654	0.004438	22.19	450
Females (13+/preg/not nsg):	0.001097	5.49	1822	0.001562	7.81	1280	0.001893	9.46	1056
Females (13+/nursing):	0.001161	5.80	1722	0.001946	9.73	1027	0.001985	9.93	1007
Females (13-19 yrs/np/nn):	0.001309	6.54	1528	0.002181	10.90	917	0.003225	16.13	620
Females (20+ years/np/nn):	0.000910	4.55	2197	0.001360	6.80	1470	0.002125	10.63	941
Females (13-50 years):	0.001046	5.23	1911	0.001553	7.77	1287	0.002741	13.70	729
Males (13-19 years):	0.001461	7.31	1368	0.001985	9.92	1007	0.002982	14.91	670
Males (20+ years):	0.001105	5.53	1809	0.001654	8.27	1208	0.002689	13.44	743
Seniors (55+):	0.000865	4.32	2312	0.001320	6.60	1514	0.002034	10.17	983
Pacific Region:	0.001656	8.28	1207	0.002758	13.79	725	0.003825	19.12	522

Attachment 3: Residue Information - Chronic (Fipronil + 2 metabolites)

Filename: C:\deem\resdata\129121c.r96
Chemical name: Fipronil
RfD(Chronic): .0002 mg/kg bw/day NOEL(Chronic): .019 mg/kg bw/day
RfD(Acute): .02 mg/kg bw/day NOEL(Acute): 2 mg/kg bw/day
Date created/last modified: 05-20-1999/14:45:23/8 Program ver. 6.77
Comment: FQPA SF=1, UF=100, therefore RfD=PAD; Fipronil (+2 metabolites) w/out MB46513

Food Code	Crop Grp	Food Name	RESIDUE (ppm)	RDF #	Adj.Factors #1	#2	Comment
291	O	Cottonseed-meal	0.006000	0	1.000	0.036	New, S18, AR
290	O	Cottonseed-oil	0.006000	0	1.000	0.036	New, S18, AR
323	M	Beef-dried	0.000740	0	1.920	1.000	New, TLT + 0.46, AR
324	M	Beef-fat w/o bones	0.006600	0	1.000	1.000	New, TLT + 3.2 ppm, AR
325	M	Beef-kidney	0.000480	0	1.000	1.000	New, TLT + 0.26, AR
327	M	Beef-lean (fat/free) w/o bones	0.000740	0	1.000	1.000	New, TLT + 0.46, AR
326	M	Beef-liver	0.002000	0	1.000	1.000	New, TLT + 1.0, AR
321	M	Beef-meat byproducts	0.000480	0	1.000	1.000	New, TLT + 0.26, AR
322	M	Beef-other organ meats	0.000480	0	1.000	1.000	New, TLT + 0.26, AR
330	M	Goat-fat w/o bone	0.006600	0	1.000	1.000	New, TLT + 3.2 ppm, AR
331	M	Goat-kidney	0.000480	0	1.000	1.000	New, TLT + 0.26, AR
333	M	Goat-lean (fat/free) w/o bone	0.000740	0	1.000	1.000	New, TLT + 0.46, AR
332	M	Goat-liver	0.002000	0	1.000	1.000	New, TLT + 1.0, AR
328	M	Goat-meat byproducts	0.000480	0	1.000	1.000	New, TLT + 0.26, AR
329	M	Goat-other organ meats	0.000480	0	1.000	1.000	New, TLT + 0.26, AR
334	M	Horsemeat	0.000740	0	1.000	1.000	New, TLT + 0.46, AR
344	M	Pork-fat w/o bone	0.001500	0	1.000	1.000	New, TLT +0.03 ppm
345	M	Pork-kidney	0.000110	0	1.000	1.000	AR
347	M	Pork-lean (fat free) w/o bone	0.000170	0	1.000	1.000	AR
346	M	Pork-liver	0.000440	0	1.000	1.000	AR
342	M	Pork-meat byproducts	0.000110	0	1.000	1.000	AR
343	M	Pork-other organ meats	0.000110	0	1.000	1.000	AR
338	M	Sheep-fat w/o bone	0.006600	0	1.000	1.000	New, TLT + 3.2 ppm, AR
339	M	Sheep-kidney	0.000480	0	1.000	1.000	New, TLT + 0.26, AR
341	M	Sheep-lean (fat free) w/o bone	0.000740	0	1.000	1.000	New, TLT + 0.46, AR
340	M	Sheep-liver	0.002000	0	1.000	1.000	New, TLT + 1.0, AR
336	M	Sheep-meat byproducts	0.000480	0	1.000	1.000	New, TLT + 0.26, AR
337	M	Sheep-other organ meats	0.000480	0	1.000	1.000	New, TLT + 0.26, AR
429	M	Veal-dried	0.000740	0	1.920	1.000	New, TLT + 0.46, AR
424	M	Veal-fat w/o bones	0.006600	0	1.000	1.000	New, TLT + 3.2 ppm, AR
426	M	Veal-kidney	0.000480	0	1.000	1.000	New, TLT + 0.26, AR
425	M	Veal-lean (fat free) w/o bones	0.000740	0	1.000	1.000	New, TLT + 0.46, AR

427	M	Veal-liver	0.002000	0	1.000	1.000 New, TLT + 1.0, AR
430	M	Veal-meat byproducts	0.000480	0	1.000	1.000 New, TLT + 0.26, AR
428	M	Veal-other organ meats	0.000480	0	1.000	1.000 New, TLT + 0.26, AR
366	P	Chicken-byproducts	0.000710	0	1.000	1.000 New, TLT + 0.02, AR
368	P	Chicken-fat w/o bones	0.001900	0	1.000	1.000 New, TLT + 0.06, AR
367	P	Chicken-giblets(liver)	0.000710	0	1.000	1.000 New, TLT + 0.02, AR
385	P	Chicken-giblets (excl. liver)	0.000710	0	1.000	1.000 New, TLT + 0.02, AR
369	P	Chicken-lean/fat free w/o bones	0.000210	0	1.000	1.000 AR
364	P	Eggs-white only	0.001100	0	1.000	1.000 New, TLT + 0.03, AR
363	P	Eggs-whole	0.001100	0	1.000	1.000 New, TLT + 0.03, AR
365	P	Eggs-yolk only	0.001100	0	1.000	1.000 New, TLT + 0.03, AR
362	P	Poultry-other-fat w/o bones	0.001900	0	1.000	1.000 New, TLT + 0.06, AR
361	P	Poultry-other-giblets(liver)	0.000710	0	1.000	1.000 New, TLT + 0.02, AR
360	P	Poultry-other-lean (fat free) w/	0.000210	0	1.000	1.000 AR
355	P	Turkey-byproducts	0.000035	0	1.000	1.000 New, TLT + 0.06, AR
357	P	Turkey--fat w/o bones	0.001900	0	1.000	1.000 AR
356	P	Turkey-giblets (liver)	0.000710	0	1.000	1.000 New, TLT + 0.02, AR
358	P	Turkey- lean/fat free w/o bones	0.000210	0	1.000	1.000 AR
449	P	Turkey-other organ meats	0.000710	0	1.000	1.000 New, TLT + 0.02, AR
319	D	Milk-fat solids	0.017000	0	1.000	1.000 New, TLT + 10.5, AR
267	15	Corn grain-bran	0.015000	0	1.000	0.070 AR
266	15	Corn grain-endosperm	0.015000	0	1.000	0.070 AR
289	15	Corn grain-oil	0.015000	0	1.000	0.070 AR
268	15	Corn grain/sugar/hfcs	0.015000	0	1.500	0.070 AR
388	15	Corn grain/sugar-molasses	0.015000	0	1.500	0.070 AR
408	15	Rice-bran	0.015000	0	1.000	0.110 AR
271	15	Rice-milled (white)	0.015000	0	1.000	0.110 AR
270	15	Rice-rough (brown)	0.015000	0	1.000	0.110 AR

Attachment 4: Chronic Exposure Analysis (Fipronil + MB45950 and MB46136)

U.S. Environmental Protection Agency Ver. 6.76
DEEM Chronic analysis for FIPRONIL (1989-92 data)
Residue file name: C:\deem\resdata\129121c.r96 Adjustment factor #2 used.
Analysis Date 06-02-1999/07:00:35 Residue file dated: 06-02-1999/06:57:30/8
Reference dose (RfD, CHRONIC) = .0002 mg/kg bw/day
COMMENT 1: FQPA SF=1, UF=100, therefore RfD=PAD; Fipronil (+2 metabolites) w/out MB46513

Total exposure by population subgroup

Population Subgroup	Total Exposure mg/kg body wt/day	Total Exposure Percent of Rfd
U.S. Population (total)	0.000010	4.9%
U.S. Population (spring season)	0.000010	4.9%
U.S. Population (summer season)	0.000010	4.9%
U.S. Population (autumn season)	0.000010	5.1%
U.S. Population (winter season)	0.000009	4.7%
Northeast region	0.000010	5.1%
Midwest region	0.000010	5.1%
Southern region	0.000010	4.8%
Western region	0.000010	4.8%
Hispanics	0.000011	5.5%
Non-hispanic whites	0.000010	4.8%
Non-hispanic blacks	0.000010	5.0%
Non-hisp/non-white/non-black)	0.000011	5.3%
All infants (< 1 year)	0.000011	5.4%
Nursing infants	0.000003	1.6%
Non-nursing infants	0.000014	7.0%
Children 1-6 yrs	0.000027	13.3%
Children 7-12 yrs	0.000016	8.2%
Females 13-19(not preg or nursing)	0.000009	4.6%
Females 20+ (not preg or nursing)	0.000006	3.0%
Females 13-50 yrs	0.000007	3.5%
Females 13+ (preg/not nursing)	0.000008	4.1%
Females 13+ (nursing)	0.000009	4.3%
Males 13-19 yrs	0.000011	5.5%
Males 20+ yrs	0.000007	3.6%
Seniors 55+	0.000006	2.8%
Pacific Region	0.000010	4.8%

Attachment 5: Residue Information - Chronic (MB46513)

Filename: C:\deem\resdata\129121cMB46513.r96
Chemical name: MB46513 (metabolite of fipronil)
RfD(Chronic): .00002 mg/kg bw/day NOEL(Chronic): .0019 mg/kg bw/day
RfD(Acute): .02 mg/kg bw/day NOEL(Acute): 2 mg/kg bw/day
Date created/last modified: 05-20-1999/14:49:05/8 Program ver. 6.77
Comment: FQPA SF=1, UF=100, therefore RfD=PAD; MB46513

Food Code	Crop Grp	Food Name	RESIDUE (ppm)	RDF #	Adj.Factors #1	#2	Comment
291	O	Cottonseed-meal	0.004700	0	1.000	0.036	New, S18, AR
290	O	Cottonseed-oil	0.004700	0	1.000	0.036	New, S18, AR
323	M	Beef-dried	0.000069	0	1.920	1.000	New, TLT + 0.46, AR
324	M	Beef-fat w/o bones	0.000610	0	1.000	1.000	New, TLT + 3.2 ppm, AR
325	M	Beef-kidney	0.000045	0	1.000	1.000	New, TLT + 0.26, AR
327	M	Beef-lean (fat/free) w/o bones	0.000069	0	1.000	1.000	New, TLT + 0.46, AR
326	M	Beef-liver	0.000180	0	1.000	1.000	New, TLT + 1.0, AR
321	M	Beef-meat byproducts	0.000045	0	1.000	1.000	New, TLT + 0.26, AR
322	M	Beef-other organ meats	0.000045	0	1.000	1.000	New, TLT + 0.26, AR
330	M	Goat-fat w/o bone	0.000610	0	1.000	1.000	New, TLT + 3.2 ppm, AR
331	M	Goat-kidney	0.000045	0	1.000	1.000	New, TLT + 0.26, AR
333	M	Goat-lean (fat/free) w/o bone	0.000081	0	1.000	1.000	New, TLT + 0.46, AR
332	M	Goat-liver	0.000180	0	1.000	1.000	New, TLT + 1.0, AR
328	M	Goat-meat byproducts	0.000045	0	1.000	1.000	New, TLT + 0.26, AR
329	M	Goat-other organ meats	0.000045	0	1.000	1.000	New, TLT + 0.26, AR
334	M	Horsemeat	0.000069	0	1.000	1.000	New, TLT + 0.46, AR
344	M	Pork-fat w/o bone	0.000310	0	1.000	1.000	New, TLT +0.03 ppm, AR
345	M	Pork-kidney	0.000023	0	1.000	1.000	AR
347	M	Pork-lean (fat free) w/o bone	0.000035	0	1.000	1.000	AR
346	M	Pork-liver	0.000092	0	1.000	1.000	AR
342	M	Pork-meat byproducts	0.000023	0	1.000	1.000	AR
343	M	Pork-other organ meats	0.000023	0	1.000	1.000	AR
338	M	Sheep-fat w/o bone	0.000610	0	1.000	1.000	New, TLT + 3.2 ppm, AR
339	M	Sheep-kidney	0.000045	0	1.000	1.000	New, TLT + 0.26, AR
341	M	Sheep-lean (fat free) w/o bone	0.000069	0	1.000	1.000	New, TLT + 0.46, AR
340	M	Sheep-liver	0.000180	0	1.000	1.000	New, TLT + 1.0, AR
336	M	Sheep-meat byproducts	0.000045	0	1.000	1.000	New, TLT + 0.26, AR
337	M	Sheep-other organ meats	0.000045	0	1.000	1.000	New, TLT + 0.26, AR
429	M	Veal-dried	0.000069	0	1.920	1.000	New, TLT + 0.46, AR
424	M	Veal-fat w/o bones	0.000610	0	1.000	1.000	New, TLT + 3.2 ppm, AR
426	M	Veal-kidney	0.000045	0	1.000	1.000	New, TLT + 0.26, AR
425	M	Veal-lean (fat free) w/o bones	0.000069	0	1.000	1.000	New, TLT + 0.46, AR
427	M	Veal-liver	0.000180	0	1.000	1.000	New, TLT + 1.0, AR

430	M	Veal-meat byproducts	0.000045	0	1.000	1.000 New, TLT + 0.26, AR
428	M	Veal-other organ meats	0.000045	0	1.000	1.000 New, TLT + 0.26, AR
366	P	Chicken-byproducts	0.000036	0	1.000	1.000 New, TLT + 0.02, AR
368	P	Chicken-fat w/o bones	0.000098	0	1.000	1.000 New, TLT + 0.06, AR
367	P	Chicken-giblets(liver)	0.000036	0	1.000	1.000 New, TLT + 0.02, AR
385	P	Chicken-giblets (excl. liver)	0.000036	0	1.000	1.000 New, TLT + 0.02, AR
369	P	Chicken-lean/fat free w/o bones	0.000010	0	1.000	1.000 AR
364	P	Eggs-white only	0.000055	0	1.000	1.000 New, TLT + 0.03, AR
363	P	Eggs-whole	0.000055	0	1.000	1.000 New, TLT + 0.03, AR
365	P	Eggs-yolk only	0.000055	0	1.000	1.000 New, TLT + 0.03, AR
362	P	Poultry-other-fat w/o bones	0.000098	0	1.000	1.000 New, TLT + 0.06, AR
361	P	Poultry-other-giblets(liver)	0.000036	0	1.000	1.000 New, TLT + 0.02, AR
360	P	Poultry-other-lean (fat free) w/	0.000010	0	1.000	1.000 AR
355	P	Turkey-byproducts	0.000036	0	1.000	1.000 New, TLT + 0.06, AR
357	P	Turkey--fat w/o bones	0.000098	0	1.000	1.000 AR
356	P	Turkey-giblets (liver)	0.000036	0	1.000	1.000 New, TLT + 0.02, AR
358	P	Turkey- lean/fat free w/o bones	0.000010	0	1.000	1.000 AR
449	P	Turkey-other organ meats	0.000036	0	1.000	1.000 New, TLT + 0.02, AR
319	D	Milk-fat solids	0.001900	0	1.000	1.000 New, TLT + 10.5, AR
408	15	Rice-bran	0.005000	0	1.000	0.110 AR
271	15	Rice-milled (white)	0.005000	0	1.000	0.110 AR
270	15	Rice-rough (brown)	0.005000	0	1.000	0.110 AR

Attachment 6: Chronic Exposure Analysis (MB46513 only)

U.S. Environmental Protection Agency Ver. 6.76
DEEM Chronic analysis for MB46513 (METABOLITE OF FIPRONIL) (1989-92 data)
Residue file name: C:\deem\resdata\129121cMB46513.r96
Adjustment factor #2 used.
Analysis Date 06-02-1999/07:05:26 Residue file dated: 06-02-1999/07:04:57/8
Reference dose (RfD, CHRONIC) = .00002 mg/kg bw/day
COMMENT 1: FQPA SF=1, UF=100, therefore RfD=PAD; MB46513

Total exposure by population subgroup

Population Subgroup	Total Exposure mg/kg body wt/day	Total Exposure Percent of Rfd
U.S. Population (total)	0.000001	4.9%
U.S. Population (spring season)	0.000001	5.0%
U.S. Population (summer season)	0.000001	4.9%
U.S. Population (autumn season)	0.000001	5.1%
U.S. Population (winter season)	0.000001	4.7%
Northeast region	0.000001	5.3%
Midwest region	0.000001	5.0%
Southern region	0.000001	4.8%
Western region	0.000001	4.8%
Hispanics	0.000001	5.9%
Non-hispanic whites	0.000001	4.8%
Non-hispanic blacks	0.000001	5.1%
Non-hisp/non-white/non-black)	0.000001	6.1%
All infants (< 1 year)	0.000001	5.8%
Nursing infants	0.000000	1.6%
Non-nursing infants	0.000002	7.5%
Children 1-6 yrs	0.000003	13.4%
Children 7-12 yrs	0.000002	8.1%
Females 13-19(not preg or nursing)	0.000001	4.5%
Females 20+ (not preg or nursing)	0.000001	3.0%
Females 13-50 yrs	0.000001	3.5%
Females 13+ (preg/not nursing)	0.000001	4.1%
Females 13+ (nursing)	0.000001	4.5%
Males 13-19 yrs	0.000001	5.2%
Males 20+ yrs	0.000001	3.7%
Seniors 55+	0.000001	2.8%
Pacific Region	0.000001	4.9%

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